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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/521,588

09/06/2005

Yoshio Akiyama

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01/14/2009

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ALEXANDRIA, VA 22320-4850

EXAMINER

JACOBSON, MICHELE LYNN

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

01/14/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/521,588
Filing Date: September 06, 2005
Appellant(s): AKIYAMA ET AL.

James A. Oliff
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11/12/08 appealing from the Office action mailed 5/29/08.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is deficient. 37 CFR 41.37(c)(1)(v) requires the summary of claimed subject matter to include: (1) a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number, and to the drawing, if any, by reference characters and (2) for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function as permitted by 35 U.S.C. 112, sixth paragraph, must be

Art Unit: 1794

identified and the structure, material, or acts described in the specification as corresponding to each claimed function must be set forth with reference to the specification by page and line number, and to the drawing, if any, by reference characters. The brief is deficient because applicant has stated that claims 5 and 7-11 depend directly from claim 6, however, claim 5 is dependent from claim 1.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

3663522	Butcher	5-1972
2002/0061371	Schmidt et al.	5-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 1794

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. The term "an inner layer formed of a synthetic resin having a lower compatibility with a synthetic resin forming said outer layer" in claim 12 is a relative term which renders the claim indefinite. The term "lower compatibility" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is impossible to determine the scope of the claim since what the compatibility inner layer with the outer layer is meant to be compared to is not defined.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

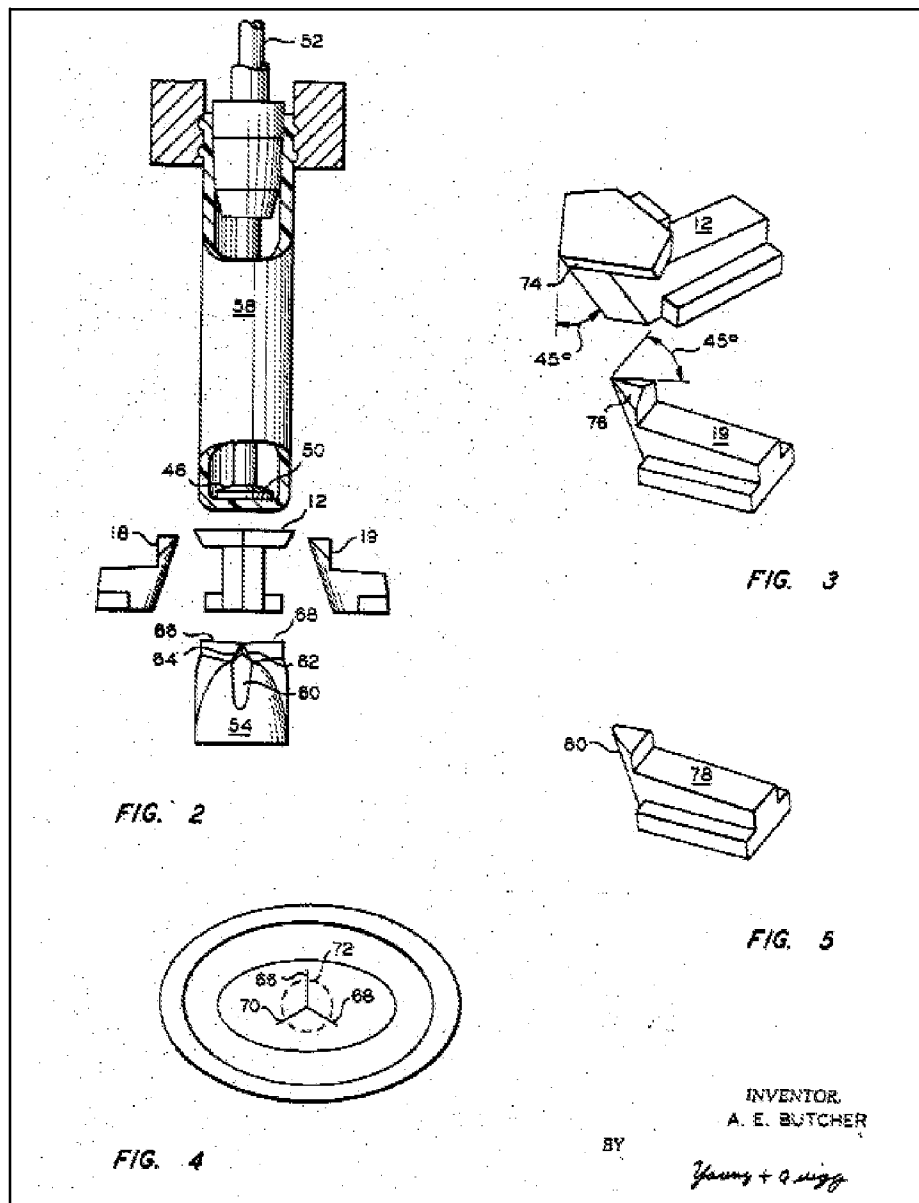
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Butcher U.S. Patent No. 3,663,522 (hereafter referred to as Butcher).

Art Unit: 1794

6. Butcher teaches a biaxially oriented polyethylene or polypropylene blow molded article formed by multiple direction pinch off sealing of a hollow parison. (Col. 2, lines 29-32, 62-67, Fig. 2-5) Although 3 blades are shown in the figure there may be any number of radially spaced blades in excess of one. (Col. 3, lines 9-12) Tuck in members (19, 78) are utilized to restrict the total length of the fusion lines to a comparatively small value as compared with the total area of the bottom of the finished container. (Col. 4, lines 28-31, Fig. 4) Once the parison is sealed of using the apparatus disclosed it is blow molded to form a bottle. (Col. 5, lines 10-11) In an example embodiment, Butcher recites a bottle formed by three way pinching-off of a



Art Unit: 1794

parison that results in pinch-off lines that define a diameter of 2.4 cm on the bottom of

an oval shaped bottle measuring about 7 cm by 5 cm (Col. 5, lines 12-16, Fig. 4)

7. The pinch-off line reaches the limitations of a biaxially oriented polymer blow

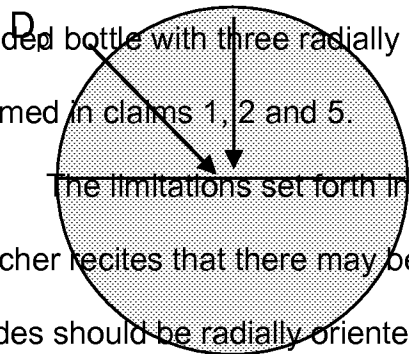
molded bottle with three radially spaced pinch-off lines caused by mold pieces as claimed in claims 1, 2 and 5.

8. The limitations set forth in claim 3 are inherently anticipated by Butcher. Since Butcher recites that there may be any number of blades in excess of one, and that the blades should be radially oriented, an embodiment of the invention with 4 blades would inherently produce a blow molded article with 4 pinch-off lines arranged in a cross shape as claimed in claim 3.

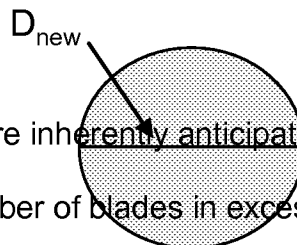
9. The example recited by Butcher is illustrative of how a bottle produced by the method of Butcher meets the limitation that the pinch-off lines are formed within a circle that has a diameter less than $\pi D_p/2$ as recited in claim 4. Even though the bottle

formed in the example is oval shaped, if you assume that the parison and the pinch-off lines stretched the same amount during blow molding and designate D_p the diameter of the short axis of the oval (5 cm) the diameter recited for the circle formed by the pinch-off lines (2.4 cm) is less than $\pi D_p/2$ as recited in claim 4. Furthermore the diameter of a circle formed by pinching off a parison is inherently less than or equal to $\pi D_p/n$ as can be seen from the following derivation:

Half of the circumference pushed in to form half of the pinch-off line



Parison
 $C_p = \pi D_p$



Pinched off
Parison
 $C_{new} = \pi D_{new}$

Since the circumference of the parison was pinched off from two directions, the new maximum diameter of the parison

produced would have a value of half of the circumference of the parison

$$D_{new} = \frac{1}{2} C_p$$

$$D_{new} = \frac{1}{2} \pi D_p$$

For n number of pinch off lines, the

diameter of the pinched off parison would

have a circumference equal to $1/n C_p$ which would therefore translate into

$$D_{new} = \frac{1}{n} \pi D_p$$

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Butcher U.S. Patent No. 3,663,522 and Schmidt et al. U.S. Patent Publication No. 2002/0061371, now U.S. Patent No. 6,546,133 (hereafter referred to as Schmidt).

12. Butcher is silent regarding multi-layer laminated parisons incorporating PET, PEN, EVOH, polyethylene, polypropylene, virgin polymer, recycled polymer and barrier layers.

13. Schmidt teaches a multilayer polymer container. In one embodiment it is a two-material, three-layer structure that includes exterior inner and outer layers of virgin PET homopolymer or copolymer and in interior core layer of post-consumer PET. (Col. 3, lines 7-10) Barrier layers such as PEN, ethylene/vinyl alcohol and MXD-6 nylon are also recited. (Col. 11, lines 49-55) Polyolefins such as polyethylene and polypropylene, PET and PEN are recited to potentially comprise one or more layers of the preform or container. (Col. 10, lines 39-46)

14. Schmidt and Butcher are both directed towards the same field of invention. The motivation to combine the pinch-off technique of Butcher with the bottle compositions of Schmidt would have been as recited by Butcher that it would have been desirable to

Art Unit: 1794

provide a seam that was more resistant to failure in the pinch-off area. (Col. 2, lines 29-31)

15. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed bottles as recited by Butcher with inner, middle and exterior layers of selected from PET, PEN, virgin polymer, recycled polymer, polypropylene, polyethylene, ethylene vinyl alcohol and gas barrier layers as recited by Schmidt and claimed in claims 7-11. Although it is unclear what is meant by the inner layer having a lower compatibility with the outer layer recited in claim 12, it is presumed that since Schmidt recites that the inner and outer layers of the bottle recited by Schmidt can be composed of different polymers that the inside would have a lower compatibility with the outside layer than with itself.

(10) Response to Argument

A. Rejection of Claim 12 Under 35 U.S.C. §112, Second Paragraph

Appellant points to *Seattle Box. Co. v. Industrial Crating & Packaging, Inc.*, 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984), MPEP 2173.05(b) which states that the fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under 35 USC 112, second paragraph in order to find support for the recitation of “an inner layer formed a synthetic resin having a low compatibility with a synthetic resin forming said outer layer” in claim 12.

MPEP 2173.05(b) further states “When a term of degree is presented in a claim, first a determination is to be made as to whether the specification provides some

Art Unit: 1794

standard for measuring that degree. If it does not, a determination is made as to whether one of ordinary skill in the art, in view of the prior art and the status of the art, would be nevertheless reasonably apprised of the scope of the invention”.

Applicant's specification does not provide a standard for measuring the amount of compatibility between the inner and outer layer of the article claimed that would be considered low compatibility. Therefore, consideration of whether one of ordinary skill in the art would be reasonably apprised of the scope of the invention is necessary.

To support a determination that one of ordinary skill would have understood the scope of the invention the Appellant has pointed to paragraph [0070] of Appellant's specification which describes an article comprising an outer layer such as polyethylene, polypropylene, and PFT and an inner layer of nylon, ethylene-vinyl alcohol or polyethylene terephthalate which is recited in the specification to have a “lower compatibility with the outer layer” “thereby allowing to provide a laminated peelable container.” Applicant further asserts these recitations would have allowed one of ordinary skill in the art to determine that the recitation of “low compatibility” indicates a “level of compatibility that is sufficiently low to make the contacting layers easily peelable from each other based on the exemplary materials for the inner and outer layers” (Appellant's brief, page 9). The examiner is not persuaded by this argument since the term “low compatibility” is never specifically defined to mean a “level of compatibility that is sufficiently low to make the contacting layers easily peelable from each other based on the exemplary materials for the inner and outer layers” and applicant has failed to provide any evidence that low compatibility is universally

Art Unit: 1794

understood by those of ordinary skill in the art to imply that two layers would be easily

peelable from one another.

Appellant has further argued that the examiner has failed to explain why the scope of the claim 12 cannot be determined after Appellant's explanation. As stated above, Appellant's explanation is not sufficient to persuade the examiner that the recitation of "low compatibility" in claim 12 would be universally understood by those of ordinary skill in the art to imply that two layers would be easily peelable from one another.

B. Claims 1-3 and 5

1. Claim 1 Appellant has asserted that the examiner has failed to provide technical reasoning to show that the alleged inherent characteristics necessarily flow from the teachings of the prior art. To support this assertion, Appellant has inferred that because the example used to derive the equation recited by applicant only recited two pinch off lines that the examiner was in error extending the validity of the equation derived to bottles comprised of more than two pinch off lines. In order to more fully illustrate that the equation claimed by applicant is inherent to the pinch off process recited by Butcher Butcher Figures 2-5

an expanded derivation of the equation previously derived in the final rejection is presented below.

Since the apparatus and method recited by Butcher are virtually identical to that recited in Appellant's specification, it is the examiner's opinion that the parisons produced would inherently display the same characteristics. As can be seen in a comparison of Figures 2-5 of Butcher with Figures 4 and 5 from Appellant's specification:

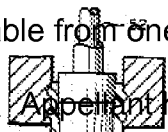


FIG. 2

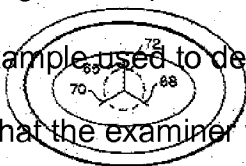


FIG. 4

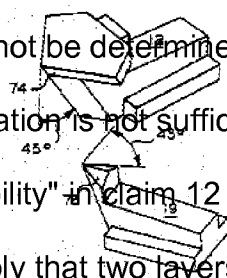


FIG. 3



FIG. 5

INVENTOR
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James + C. Mfg.

FIG. 4

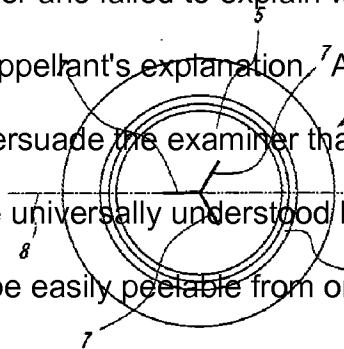


FIG. 5a

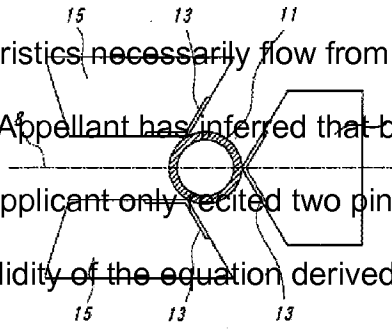
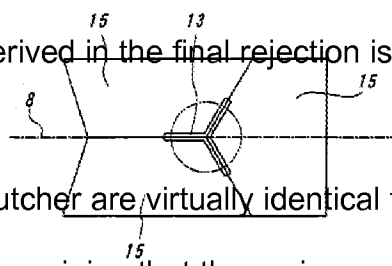


FIG. 5b



Art Unit: 1794

Simple comparison of Butcher's figure 4 and Appellant's figure 4 indicates that the pinch off lines off both Butcher and Appellant are formed by a pinch off process that is substantially the same.

In order to elucidate the length of the pinch off lines and thus the diameter of the pinched off region of the parison a geometric analysis is necessary. First it is necessary to establish the circumference of the tubular body from which the parison is formed by pinching off the bottom in equation (1):

$$C_p = \pi D_p \quad (1)$$

Where C_p is the circumference of the tubular body used to form the parison and D_p is the diameter of the tubular body used to form the parison. In order to form the pinched off portion, the tubular parison body is impinged on from all sides by the pinch off blades as can be seen in figures 2 and 3 of Butcher. As such, the length available to form the pinch off lines will never be greater than the circumference of the original tubular body. The number of pinch off blades determines the number of pinch off lines (n) formed. Since the pinch off blades surround the tubular parison evenly, the length of the section ($L_{psection}$) of the circumference that they impinge upon in order to form the pinch off lines is equal to the circumference of the tubular body divided by the number of pinch off blades and therefore pinch off lines as shown in equation (2):

$$L_{psection} \leq C_p/n \quad (2)$$

Art Unit: 1794

Since each one of these pinch sections is bisected and fused evenly with half of the pinch off section next to it (as clearly illustrated in figure 4 of Butcher), the radius (r) of the pinch off region is therefore equation (3):

$$r = \frac{1}{2} L_{psection} \quad (3)$$

As such, the diameter, D_{new} , of the newly pinched off section is two times the radius and therefore equation (4):

$$D_{new} = L_{psection} \quad (4)$$

By substituting equation 2 into equation 4 we get equation (5):

$$D_{new} \leq C_p/n \quad (5)$$

By substituting equation 1 into equation 5 we get equation (6):

$$D_{new} \leq \pi D_p/n \quad (6)$$

Which is the same equation used by applicant to describe the circumference of the pinched off region in the newly formed parison claimed in claim 1. While the example derivation presented in the previous office action only considered two pinch off lines, as can be seen from this expanded derivation, the equation claimed by applicant can be readily derived using geometric principles to describe the circumference of the pinched off region of parisons formed by the method of impinging wedges of the same size evenly spaced around a tube to form a pinched off bottom.

Appellant has asserted on page 14 of the appellant brief that “those skilled in the art would recognize that the circumference of the parison is not necessarily proportionally reduced based on the number of directions in which the circumference of the parison was pinched off. One having ordinary skill would appreciate that depending

Art Unit: 1794

on various factors, such as the shape and/or length of the jaws, the material of the parison, and the forces applied to the parison by the jaws to pinch off, the diameter of the pinch off lines would vary. In other words, the diameter of the pinched off parison does not always become half the original diameter of the parison." Appellant further states that "For instance, the Office action has not shown that if the circumference of the pinch off lines are pushed in, for example, ten different directions, for example (sic), the new diameter of the circumference become one-tenth". However, as clearly shown in the expanded derivation above, it is the examiner's position that the new diameter of the pinched off region would indeed become one-tenth the diameter of the tubular body used to form the parison.

2. Claims 2, 3 and 5 Appellant argues that Butcher does not discuss four pinch off lines as claimed by applicant in claim 3. However, Butcher clearly discloses "any number of jaw members in excess of one, in a preferred embodiment there are three jaw members" (Col. 3, lines 9-11) One of ordinary skill would have immediately envisaged a method utilizing 4 jaw members given the disclosure of jaw members greater than 1 and preferably 3. Appellant further argues that the examiner has failed to show that Butcher satisfies Appellant's claimed equation, but this assertion is not found persuasive for the reasons enumerated above.

C. Claims 6-12

Appellant asserts that claim 6-12 are allowable since it is Appellant's opinion that Butcher does not satisfy the limitations of claim 1. For the reasons enumerated above regarding claim 1, the examiner does not find this argument persuasive.

Art Unit: 1794

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Michele L. Jacobson/
Examiner, Art Unit 1794

Conferees:

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1794

/Rena L. Dye/
Supervisory Patent Examiner, Art Unit 1794